Integrating New Automation: WES is An Operator’s Must-Have

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Introductions

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What is a Systems Integrator?

**Systems Integrator** - is an individual or business that designs, engineers, installs and commissions logistics systems for clients by combining equipment, controls and supply chain software products.
Monthly Unemployment and Warehouse Labor

% Unemployment Trend

Employee Count in ‘000s

Data provided by U.S. Bureau of Labor Statistics
<table>
<thead>
<tr>
<th>LABOR REDUCTION TECHNOLOGIES</th>
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<td><strong>Conventional</strong> → <strong>Leading Edge</strong></td>
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### Conveyor
- Transport
- Accumulation
- Sort

### Sorters
- Crossbelt
- Tilt Tray
- Sliding Shoe
- Bombay

### Put-to-Order
- Put-To-Light (PTL)
- Push Through
- Pull Through
- Put-to-order

### Goods-To-Man
- Mini-load
- Shuttles
- Unit load
- Goods to Person

### AMR
- Autonomous Mobile Robots (AMR)

### Robotics
- Robotic Arms
- AI

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**POWERED BY POSSIBILITIES.**
Put & Pick-To-Light
Autonomous Mobile Robots (AMR)
Pocket/Pouch Unit Sortation
Automated Storage & Retrieval (ASRS)
Robotic Arms
Challenges
• Silos of WCS interfacing to WMS
• Each WCS has no awareness of another WCS’s work
• Multiple technologies stacks to maintain
• Multiple WMS interfaces to maintain
• Intelligence to balanced labor accomplished by gathering data from multiple systems
• Synchronization across technologies doesn’t exist
WMS/WES Deployment Model

The Warehouse Execution System
Order & Inventory Intelligence w/Ability to Balance Machines and People Across All Orders

ERP, Order Management, Legacy IT

LMS

WMS

TMS

Put to Light
WCS ASRS
WCS Item Sorter
AMR
WCS Shipping Sorter
Case Pick
Label Print Applicator

Powered by Possibilities.
WES Methodologies

1. Monitor Wave Completion
   - Order Release
   - Picking
   - PreSort
   - Pack
   - Ship

2. Monitor Machines via Sensors
   - Order Release
   - WIP
   - Picking
   - WIP
   - PreSort
   - WIP
   - Ship

3. Monitor Demand Signal
   - Pull Based
   - Pick
   - PreSort
   - Pack
   - Ship
   - Demand Signal

POWERED BY POSSIBILITIES.
Synchronizing & Sequencing Work

Machine Picking

Human Picking

LTL/FTL Orders

Automation Friendly Orders

All Ecommerce Orders
Gap Inc, Fulfillment Center Retrofit

1 – Pick Module 1
2 – Pick Module 2
3 – Inbound ASRS
4 – Routing Sortation
5 – Unit Sortation w/Put Walls
6 – Robotic Sort Station w/AI
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